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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,311	06/15/2006	Hirohito Hirata	128443	3222
25944	7590	01/24/2008		
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ALEXANDRIA, VA 22320-4850				
EXAMINER				
TRAN, BINH Q				
ART UNIT		PAPER NUMBER		
3748				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,311	Applicant(s) HIRATA ET AL.	
	Examiner BINH Q. TRAN	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>07/06; 11/07; 12/07</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Receipt and entry of Applicant's Preliminary Amendment dated June 15, 2006 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-7 and 9-20 are rejected under 35 U.S.C. 102 (b) as being anticipated by Taylor, III et al. (Taylor) (Patent Number 7,021,048).

Regarding claims 1 and 9, Taylor discloses a plasma injector (12) and method for injecting a reducing agent, wherein said plasma injector (12) comprises a injection nozzle (38) and a plasma generator (42) which generates a plasma in the vicinity of a injection port at the distal end portion of said injection nozzle (38); and wherein said plasma injector injects a reducing agent in a liquid droplet state, and at least partially converts the reducing agent injected in a liquid droplet state into a plasma to vaporize the reducing agent (e.g. See Fig. 2, and 5-9; col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claim 2, Taylor further discloses wherein said plasma generator is located at the distal end portion of said injecting nozzle (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claim 3, Taylor further discloses wherein said plasma is an inductive-coupling plasma (e.g. 54, 56, 58); wherein said plasma generator located at the distal end portion of said injection nozzle comprises a cup-shaped member surrounding the injection port of said injection nozzle, and an inductive-coil surrounding around said cup-shaped member; and wherein said cup-shaped member is made of an electromagnetic wave-transmissive material (62) (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claim 4, Taylor further discloses wherein the plasma is an electric-discharge plasma; wherein said plasma generator located at the distal end portion of the injection nozzle comprises a cup-shaped member surrounding the injection port of said injection nozzle; wherein said cup-shaped member is made of an electrically semiconductive material or an electrically conductive material; and wherein said cup-shaped member and said distal end portion of the nozzle are electrically insulated (60) from each other to form an electrode couple together (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claim 5, Taylor further discloses wherein the plasma is an electric-discharge plasma, a microwave plasma or an inductive-coupling plasma (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claim 6, Taylor further discloses wherein a reducing agent is injected upstream of a catalyst located in an exhaust pipe; and wherein said reducing agent is injected by said plasma injector according to claim 1 (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claims 7 and 16-20, Taylor further discloses wherein said catalyst is a NO_x purifying catalyst (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claim 10, Taylor further discloses wherein the plasma is an electric-discharge plasma, a microwave plasma or an inductive-coupling plasma (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Regarding claims 11-15, Taylor further discloses wherein a reducing agent is injected upstream of a catalyst located in an exhaust pipe (e.g. See col. 4, lines 19-67; col. 5, lines 1-57).

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Jonson (Pat. No. 7104224), DeFreitas et al. (Pat. No. 5845480), Suckewer et al. (Pat. No. 5704321), Kemmler et al. (Pat. No. 5904127), and Ibe et al. (Pat. No. JP 02007100578A) all discloses an exhaust gas purification for use with an internal combustion engine.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
January 21, 2008



Binh Q. Tran
Patent Examiner
Art Unit 3748